

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

REC'D 12 MAR 2007

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Applicant's or agent's file reference 193654096655	FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/US04/25710 4504/25719	International filing date (day/month/year) 28 July 2004 (28.07.2004)	Priority date (day/month/year) 28 July 2003 (28.07.2003)	
International Patent Classification (IPC) or national classification and IPC IPC: B06K 3/24 and US CL: 280, 124, 128, 124, 134, 124, 156, 180, 353, 359, 380, 381			
Applicant MAXIMA INTERNATIONAL INC			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>3</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (sent to the applicant and to the International Bureau) a total of <u>2</u> sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>			
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>			
Date of submission of the demand 07 July 2005 (07.07.2005)		Date of completion of this report 07 December 2005 (07.12.2005)	
Name and mailing address of the IPEA/US Mail Stop PCT, Attn: IPEA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450		Authorized officer Paul Dickson <i>[Signature]</i>	
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Form PCT/IPEA/409 (cover sheet) (April 2005)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/US04/25719

Box No. 1 Basis of the report

1. With regard to the language, this report is based on:

- ☒ the international application in the language in which it was filed.
- ☐ a translation of the international application into English, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
- ☐ publication of the international application (under Rule 12.4(a))
- ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a))

2. With regard to the elements of the international application, this report is based on *replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*.

- ☐ the international application as originally filed/furnished
- ☒ the description:
 pages 1-3 and 5 as originally filed/furnished
 pages* 4 received by this Authority on 31 May 2005 (31.05.2005)
 pages* NONE received by this Authority on _____
- ☒ the claims:
 pages NONE as originally filed/furnished
 pages* NONE as amended (together with any statement) under Article 19
 pages* 6 received by this Authority on 31 May 2005 (31.05.2005)
 pages* NONE received by this Authority on _____
- ☒ the drawings:
 pages 1-4 as originally filed/furnished
 pages* NONE received by this Authority on _____
 pages* NONE received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

Form PCT/ISA/409 (Box No. 1) (April 2005)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/US04/25719

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)

Claims 1-3 YES

Claims ~~NON~~ NO

Inventive Step (IS)

Claims 1-3 YES

Claims ~~NON~~ NO

Industrial Applicability (IA)

Claims 1-3 YES

Claims ~~NON~~ NO

2. Citations and Explanations (Rule 70.7)

Claims 1-3 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest an integrated rear suspension secured to a transmission case comprising: a plurality of trailing arms, control arms, a compound link attached to each trailing arm; and a transmission cross member fixedly secured to the frame rails and the control arms, the cross member including fixtures to receive and secure the transmission case and each of the control arms.

Claims 1-3 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

----- NEW CITATIONS -----

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end 18 of the trailing arm 15 is secured to the frame rail 10 with a bracket 9. A second end is attached to a wheel carrier 45.

[0015] As best seen in Figures 2 and 3, half shafts 50 from the transmission casing 21 are coupled to the wheel carriers 45 through an opening 8 formed in the trailing arms 15. The half shafts 50 provide rotational motion to the wheel carriers 45 from a shaft (not shown) engaging the transmission casing 21.

[0016] Referring to Figure 3, the pair of upper control arms 25 are attached to the transmission cross member 20 (as best seen in Figure 1) at a first end 26 of the control arm 25, and to the trailing arms 15 at the second end 27 of the upper control arm 25. The upper control arms 25 provide structural strength to the suspension system 5, as well as provide control and relieve stresses associated with the trailing arm 15 attached to the wheel carrier 45.

[0017] Again, referring to Figure 3, the compound link member 30 is positioned between the opposing trailing arms 15 and is attached at a lower portion 55 of the trailing arm 15 by an appropriate bracket 60. The compound link member 30 includes a bell crank 35 associated therewith approximately at the center of the compound link member 30 between the pair of trailing arms 15. A watts linkage 40 including opposing connecting rods 41, 42 are attached at one end 43 to the frame rails 10 and at the other end 44 to the bell crank 35 with the use of appropriate bushings. As best seen in Figure 2, the connecting rods 41, 42 are connected on their first end 43 to the frame rail 10 by an appropriate bracket 70 attached to the frame rail 10. The bell crank portion 35 of the watts linkage 40 provides crosswise or lateral support for the suspension as the connecting rods 41, 42 or links are positioned in a transverse direction with reference to the driving direction. The watts linkage 40 transmits the lateral forces necessary to achieve the desirable toe-in and lateral force transfer characteristics outlined in the background section of the application.

[0018] In a preferred aspect of the invention, the suspension system 5 further includes a pair of coil over shocks 75 as best seen in Figures 2 and 3, attached to the compound link member 30 via appropriate brackets 80. The coil over shocks 75 are

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CLAIMS

What is claimed:

1. An integrated rear suspension assembly fixedly securable to a transmission case, rear wheel carriers, and frame rails of a motor vehicle, said integrated rear suspension assembly comprising:
 - a plurality of trailing arms having first and second ends, each of said first end secured to one of the frame rails and each of said second ends secured to each of the rear wheel carriers;
 - a plurality of control arms pivotally secured to each of said plurality of trailing arms for controlling said plurality of trailing arms;
 - a compound link member having opposing ends attached to each of said plurality of trailing arms; and
 - a transmission cross member fixedly secured to each of the frame rails and fixedly secured to each of said plurality of control arms, said transmission cross member including fixtures to receive and secure the transmission case and each of said plurality of control arms thereto such that said transmission cross member facilitates said integrated rear suspension assembly and the transmission case to be assembled prior to securing said integrated suspension assembly to the frame rails.
2. An integrated rear suspension assembly as set forth in claim 1 wherein said transmission cross member includes fixtures for securing the transmission case thereto.
3. An integrated rear suspension assembly as set forth in claim 2 including a rear cross member having a lowered profile.

AMENDED SHEET